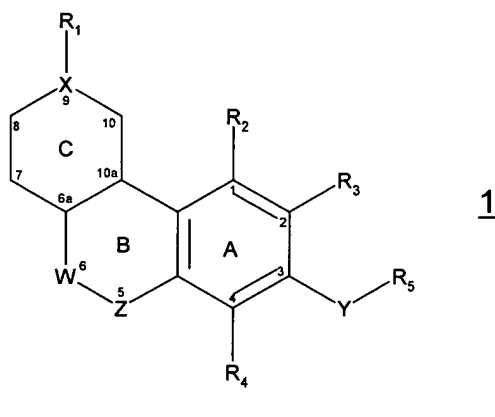


**Listing of Amended Claims:**

1. (Currently Amended) A method of using a fluorescent cannabinoid compound comprising:

providing a cannabinoid compound having structural formula 1 below or a physiologically acceptable salt thereof, wherein the compound has an endogenous fluorescent property;



wherein:

Y is selected from O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C and C≡C; Z is O; X is selected from C and CH; and

W is C=O and the C ring has a double bond in the 6a-10 position; or

R1 is =O and the C ring has a double bond in the 10-10a position; or

W is C=O and the C ring is aromatic;

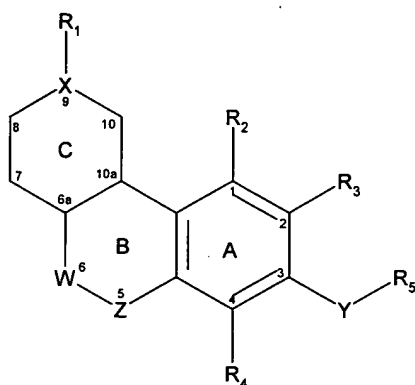
exciting the cannabinoid compound; and

detecting the electromagnetic radiation fluorescently emitted by the cannabinoid compound.

2. (Currently Amended) The method of claim 1, a wherein the electromagnetic radiation fluorescently emitted by the ~~cannabinoid~~ compound is in the ultraviolet-visible wavelength ranges.

3. (Canceled)
4. (Canceled)
5. (Original) The method of claim 1, wherein the step of detecting comprises quantifying the electromagnetic radiation fluorescently emitted by the cannabinoid compound.
6. (Currently Amended) A method of using a fluorescent cannabinoid compound comprising:

providing a cannabinoid compound having structural formula I below or a physiologically acceptable salt thereof, wherein the compound has an endogenous fluorescent property ~~The method of claim 1, wherein the cannabinoid compound comprises compound formula I, and physiologically acceptable salts thereof;~~



wherein:

~~the C ring contains one double bond;~~

W comprises is selected from C=O[,.] and C=S or C=CH<sub>2</sub>;

X comprises is selected from C[,.] and CH, N, S, O, SO or SO<sub>2</sub>;

Y comprises is selected from O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C or C≡C;

~~Z comprises is O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;~~

~~when X is S, O, SO or SO<sub>2</sub>, R<sub>4</sub> is not present, or~~

~~when X is N, R<sub>4</sub> comprises H, alkyl, alkoxy alkyl, alkylmercapto, alkylamino, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub> or alkyl substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)<sub>3</sub>, N<sub>3</sub>, NCS, CN, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H[[,]] or SO<sub>3</sub>alkyl, or~~

~~when X is C or CH, R<sub>1</sub> comprises is any possible member selected from H, halogen, N<sub>3</sub>, NCS, CN, NO<sub>2</sub>, NQ<sub>1</sub>Q<sub>2</sub>, =O, OQ<sub>3</sub>, OAc, O-acyl, O-aryl, NH-acyl, NH-aryl, CHO, C(halogen)<sub>3</sub>, COOQ<sub>3</sub>, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub>, =CH<sub>2</sub>, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino or and alkyl substituted in any possible position with at least substituent group,~~

~~Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl, or~~

~~Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or~~

~~Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,~~

~~Q<sub>3</sub> comprises is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;~~

~~R<sub>2</sub> comprises is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, CONQ<sub>1</sub>Q<sub>2</sub>, OQ<sub>3</sub>, CQ<sub>3</sub>, C(halogen)<sub>3</sub>, alcohol, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl[[,]] and SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>,~~

~~T<sub>1</sub> is in any possible position and comprises is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or and NQ<sub>1</sub>Q<sub>2</sub>,~~

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from an alkyl group, a carbocyclic ring, a heterocyclic ring, N-alkyl ~~or~~ and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub> ~~or~~ and adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, dialkylamino ~~or~~ and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> ~~comprises~~ is selected from H, C(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, alkylamino, dialkylamino, NO<sub>2</sub>, alkyl, alkoxy, a heterocyclic ring ~~or~~ and a heteroaromatic ring;

exciting the cannabinoid compound; and

detecting the electromagnetic radiation fluorescently emitted by the cannabinoid compound.

7. (Currently Amended) The method of claim 6 wherein:

the C ring contains one double bond; X is C or CH and R<sub>1</sub> comprises is any possible member selected from H, halogen, =CH<sub>2</sub>, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, CH<sub>2</sub>OH, halogen, C(halogen)<sub>3</sub>, N<sub>3</sub>, NCS, CN, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>.

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about

6 members.

8. (Currently Amended) The method of claim 6 wherein the C ring contains one double bond; and R<sub>5</sub> comprises is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub> ~~comprises~~ is selected from a carbocyclic ring having 5 to 6 ring members[[,]] and a heterocyclic ring having 5 to 6 ring members and 1,3 di-heteroatoms each independently selected from O, S, N and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T<sub>4</sub> ~~comprises~~ is selected from alkyl, a heterocyclic ring or and a heteroaromatic ring.

9. (Currently Amended) The method of claim 6 wherein:  
the C ring comprises a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C or N;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R<sub>1</sub> ~~comprises~~ is selected from OH, CH<sub>2</sub>OH[[,]] , halogen or and C(halogen)<sub>3</sub>;

R<sub>2</sub> ~~comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol ~~or~~ and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, ~~or~~ adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino ~~or~~ and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> ~~comprises~~ is selected from H, C-(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, NO<sub>2</sub>, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

10. (Currently Amended) The method of claim 6 wherein:  
the C ring ~~comprises~~ has a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C ~~or~~ N;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~



Z is O;

R<sub>1</sub> comprises is selected from OH, CH<sub>2</sub>OH[[:]] , halogen or and C(halogen)<sub>3</sub>;

R<sub>2</sub> comprises is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> or and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and comprises is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring or and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[: or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> comprises is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from comprise H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> comprises is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub> comprises, if present, is selected from an alkyl, a carbocyclic ring having 4 to 6 ring members or and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

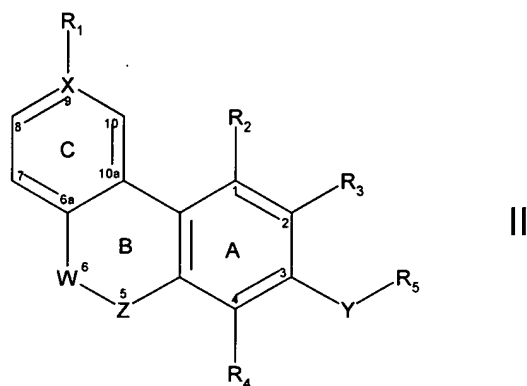
D<sub>2</sub> comprises is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub> or and adamantan-2-ylidenemethyl-T<sub>3</sub>,

T<sub>2</sub> comprises is selected from , in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> comprises is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> comprises is selected from alkyl, C(halogen)<sub>3</sub> aminoalkyl, di-aminoalkyl, NH<sub>2</sub>, a heterocyclic ring or and a heteroaromatic ring.

11. (Currently Amended) The method of claim 4 6 wherein the cannabinoid compound comprises compound formula II, and physiologically acceptable salts thereof,



wherein:

~~W comprises C=O, C=S, or C=CH<sub>2</sub>;~~

~~X comprises C, CH or N;~~

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z comprises O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;~~

~~R<sub>1</sub> comprises is any possible member selected from H, halogen, N<sub>3</sub>, NCS, CN, NO<sub>2</sub>, NQ<sub>1</sub>Q<sub>2</sub>, OQ<sub>3</sub>, OAc, O-acyl, O-aryl, NH-acyl, NH-aryl, CHO, C(halogen)<sub>3</sub>, COOQ<sub>3</sub>, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub>, alkyl[[,]] and alkyl substituted in any possible position with at least one substituent group,~~

~~Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,~~  
or

~~Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or~~

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[,]] ~~or~~ and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>2</sub> ~~comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, alcohol, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, ~~SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>~~, CONQ<sub>1</sub>Q<sub>2</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl[[,]] and SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[,]] ~~or~~ and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and C1 to C4 alkyl,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> comprises is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and C1 to C4 alkyl;

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino or and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> ~~comprises~~ is selected from H, C(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, NO<sub>2</sub>, alkyl, alkoxy, a heterocyclic ring or and a heteroaromatic ring.

12. (Currently Amended) The method of claim 11 wherein W ~~comprises~~ is C=O.

13. (Currently Amended) The method of claim 11 wherein R<sub>1</sub> ~~comprises~~ is any possible member selected from H, halogen, OH, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)<sub>3</sub>, N<sub>3</sub>, NCS, CN, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H ~~or~~ and SO<sub>3</sub>alkyl.

14. (Currently Amended) The method of claim 11 wherein R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, ~~or~~ adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino ~~or~~ and NH

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T<sub>4</sub> ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

15. (Currently Amended) The method of claim 11 wherein:

W is C=O;

X ~~comprises~~ is C ~~or~~ N;

Y ~~comprises~~ is selected from O, S, NH, N-alkyl, N=N, C=C ~~or~~ and C≡C;

Z ~~is~~ O;

R<sub>1</sub> ~~comprises~~ is selected from methyl, OH, CH<sub>2</sub>OH[[:]] , halogen ~~or~~ and C(halogen)<sub>3</sub>;

R<sub>2</sub> ~~comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, C(halogen)<sub>3</sub>, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[:]] ~~or~~ and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or.

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> comprises is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from comprise H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> comprises is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, comprises is selected from a carbocyclic ring, a heterocyclic ring, alkylamino or and NH,

D<sub>2</sub> comprises is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH,

T<sub>2</sub> comprises is selected from, in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> comprises is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> comprises is selected from H, C(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, NO<sub>2</sub>, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or and a heteroaromatic ring.

16. (Currently Amended) The method of claim 11 wherein:

W is C=O;

X comprises is C or N;



~~Y comprises~~ is selected from O, S, NH, N-alkyl, N=N, C=C ~~or~~ and C≡C;

~~Z is~~ O;

~~R<sub>1</sub> comprises~~ is selected from methyl, OH ~~or~~ and CH<sub>2</sub>OH;

~~R<sub>2</sub> comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, C(halogen)<sub>3</sub>, alcohol, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

~~R<sub>3</sub> comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> comprises is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> comprises is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, comprises is selected from an alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D<sub>2</sub> comprises is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic terpene, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub> ~~or~~ and adamantan-2-ylidenemethyl-T<sub>3</sub>,

T<sub>2</sub> comprises is selected from, in any possible position, a substituent group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> comprises is an alkyl group having from 0 to about 9 carbon atoms, and

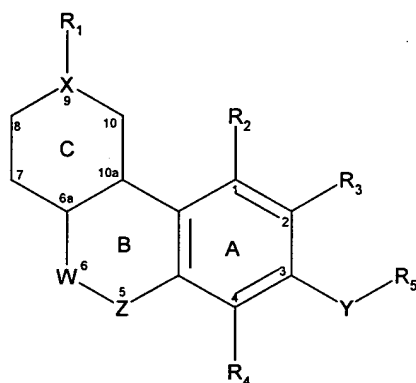
T<sub>4</sub> comprises is selected from alkyl, C(halogen)<sub>3</sub> aminoalkyl, di-aminoalkyl, NH<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

17. (Currently Amended) The method of claim 1 comprising the step of combining the ~~cannabinoid~~ compound with a test sample.

18. (Currently Amended) The method of claim 1 comprising the step of interacting the ~~cannabinoid~~ compound with a cannabinoid receptor.

19. (Currently Amended) The method of claim 1 comprising the step of selectively interacting the ~~cannabinoid~~ compound with predominately one type of cannabinoid receptor.

20. (Currently Amended) A test kit for detecting a fluorescent property comprising a ~~cannabinoid~~ cannabinimimetic compound having an endogenous fluorescent property and the structural formula



wherein:

Y comprises is selected from O, S, NH, N-alkyl, N-substituted alkyl, N=N, C=C or and C≡C;

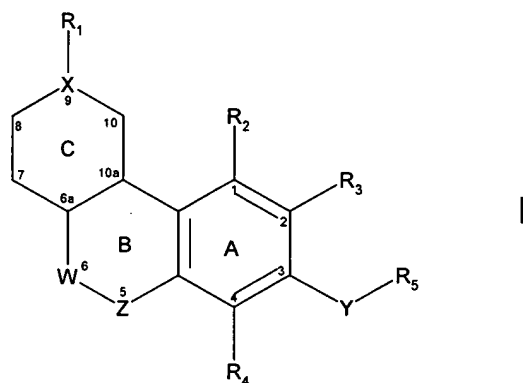
Z is O; X is selected from C and CH; and

W comprises is C=O and the C ring has a double bond in the 6a-10 position; or

R1 comprises is =O and the C ring has a double bond in the 10-10a position; or

W comprises is C=O and the C ring is aromatic.

21. (Currently Amended) A compound of formula I, and physiologically acceptable salts thereof,



wherein:

the C ring contains one double bond;

W comprises is selected from C=O[.] and C=S or C=CH<sub>2</sub>;

X comprises is selected from C[.] and CH, N, S, O, SO or SO<sub>2</sub>;

Y comprises is selected from O, S, NH, N-alkyl, N=N, C=C or and C≡C;

Z comprises is O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;

when X is S, O, SO or SO<sub>2</sub>, R<sub>4</sub> is not present, or

when X is N, R<sub>4</sub> comprises H, alkyl, alkoxy alkyl, alkylmercapto, alkylamino, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ, Q<sub>2</sub>, CONQ, Q<sub>2</sub> or alkyl substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)<sub>3</sub>, N<sub>3</sub>, NCS, CN, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, or SO<sub>3</sub>alkyl; or

~~when X is C or CH~~, R<sub>1</sub> ~~comprises~~ is any possible member selected from H, halogen, N<sub>3</sub>, NCS, CN, NO<sub>2</sub>, NQ<sub>1</sub>Q<sub>2</sub>, =O, OQ<sub>3</sub>, OAc, O-acyl, O-aryl, NH-acyl, NH-aryl, CHO, C(halogen)<sub>3</sub>, COOQ<sub>3</sub>, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub>, =CH<sub>2</sub>, alkyl, alcohol, alkoxy, alkylmercapto, alkylamino, di-alkylamino ~~or~~ and alkyl substituted in any possible position with at least substituent group,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>2</sub> ~~comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, CQ<sub>3</sub>, C(halogen)<sub>3</sub>, alkyl-hydroxyl, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl[[,]] and SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbons, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[, or] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from an alkyl group, a carbocyclic ring, a heterocyclic ring, N-alkyl ~~or~~ and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, ~~or~~ adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, dialkylamino ~~or~~ and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent

group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> ~~comprises~~ is selected from H, C(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, alkylamino, di-alkylamino, NO<sub>2</sub>, alkyl, alkoxy, a heterocyclic ring ~~or~~ and a heteroaromatic ring but if W is C=O and Y is O then R<sub>1</sub> is not H.

22. (Currently Amended) The compound of claim 21 wherein ~~X is C or CH~~ and R<sub>1</sub> ~~comprises~~ is any possible member selected from H, halogen, =CH<sub>2</sub>, an alkyl group having 1 to about 5 carbon atoms ~~or~~ and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, CH<sub>2</sub>OH, halogen, C(halogen)<sub>3</sub>, N<sub>3</sub>, NCS, CN, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, or SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members.

23. (Currently Amended) The compound of claim 21 wherein R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 5 to 6 ring members[[,]] and a heterocyclic ring having 5 to 6 ring members and 1,3 di-heteroatoms each independently selected from O, S, N and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, ~~or~~ adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino ~~or~~ and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and  
T<sub>4</sub> ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

24. (Currently Amended) The compound of claim 21 wherein:  
the C ring ~~comprises~~ has a double bond in the 6a-10a position;

W is C=O;

X ~~comprises~~ is C ~~or~~ N;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

Z ~~is~~ O;

R<sub>1</sub> ~~comprises~~ is selected from OH, CH<sub>2</sub>OH; halogen ~~or~~ and C(halogen)<sub>3</sub>;

R<sub>2</sub> ~~comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or



Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C-(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about

sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH,

T<sub>2</sub> comprises is selected from, in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> comprises is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> comprises is selected from H, C-(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, NO<sub>2</sub>, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or and a heteroaromatic ring.

25. (Currently Amended) The compound of claim 21 wherein:  
the C ring comprises has a double bond in the 6a-10a position;

W is C=O;

X comprises is C or N;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R<sub>1</sub> comprises is selected from OH, CH<sub>2</sub>OH; halogen or and C(halogen)<sub>3</sub>;

R<sub>2</sub> comprises is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, C(halogen)<sub>3</sub>, alcohol, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> or and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and comprises is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

$R_5$  comprises is selected from  $-D_1-D_2-T_2$  or and  $-D_2-T_2$ ,

$D_1$ , if present, comprises is selected from alkyl, a carbocyclic ring having 4 to 6 ring members or and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

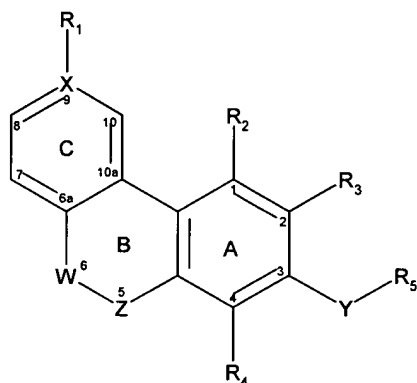
$D_2$  comprises is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, d-alkylamino, NH, a bicyclic ring, a tricyclic terpene, 1-adamantyl- $T_3$ , 2-adamantyl- $T_3$ , adamantan-1-ylmethyl- $T_3$  or and adamantan-2-ylidenemethyl- $T_3$ ,

$T_2$  comprises is selected from, in any possible position, a substituent group or and  $-CO-T_4$ ,

$T_3$  comprises is an alkyl group having from 0 to about 9 carbon atoms,

$T_4$  comprises is selected from alkyl,  $C(\text{halogen})_3$  aminoalkyl, di-aminoalkyl,  $NH_2$ , a heterocyclic ring or and a heteroaromatic ring.

26. (Currently Amended) The compound of formula II, and physiologically acceptable salts thereof,



II

wherein:

W comprises is selected from  $C=O[.,.]$  and  $C=S$ , or  $C=CH_2$ ;

X comprises is selected from  $C[.,.]$  and  $CH$  or  $N$ ;

Y comprises is selected from O, S, NH, N-alkyl,  $N=N$ ,  $C=C$  or and  $C\equiv C$ ;

~~Z comprises is O, NH, N-alkyl where the alkyl group has 1 to about 5 carbon atoms or N-substituted alkyl, where the alkyl group has 1 to about 5 carbon atoms and is substituted with at least one substituent group in any possible position;~~

~~R<sub>1</sub> comprises is~~ any possible member selected from H, halogen, ~~C(halogen)<sub>3</sub>~~, N<sub>3</sub>, NCS, CN, NO<sub>2</sub>, NQ<sub>1</sub>Q<sub>2</sub>, OQ<sub>3</sub>, OAc, O-acyl, O-aryl, NH-acyl, NH-aryl, CHO, C(halogen)<sub>3</sub>, COOQ<sub>3</sub>, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub>, alkyl[[,]] and alkyl substituted in any possible position with at least one substituent group,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises is~~ selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

~~R<sub>2</sub> comprises is~~ selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, C(halogen)<sub>3</sub>, alcohol, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, alkyl-hydroxyl, NH-COalkyl, NH-COaryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>, CONQ<sub>1</sub>Q<sub>2</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl[[,]] and SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises is~~ selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and C1 to C4 alkyl,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and C1 to C4 alkyl;

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino or and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about

sixteen carbon atoms, a bicyclic ring, a tricyclic ring, a heterocyclic ring, an aromatic ring, a heteroaromatic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> ~~comprises~~ is selected from H, C(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, NO<sub>2</sub>, alkyl, alkoxy, a heterocyclic ring or and a heteroaromatic ring  
but if W is C=O and Y is O then R<sub>5</sub> is not CH<sub>2</sub>COOH or CH<sub>2</sub>COOEt.

27. (Currently Amended) The compound of claim 26 wherein W ~~comprises~~ is C=O.

28. (Currently Amended) The compound of claim 26 wherein R<sub>1</sub> ~~comprises~~ is any possible member selected from H, halogen, C(halogen)<sub>3</sub>, alkyl amino, di-alkylamino, NH<sub>2</sub>, OH, an alkyl group having 1 to about 5 carbon atoms or and an alkyl group having 1 to about 5 carbon atoms and substituted in any possible position with at least one member selected from OH, CHO, COOH, C(halogen)<sub>3</sub>, N<sub>3</sub>, NCS, CN, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H or and SO<sub>3</sub>alkyl.

29. (Currently Amended) The compound of claim 26 wherein R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members or and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, a bicyclic ring, a tricyclic terpene, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group or

and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T<sub>4</sub> ~~comprises~~ is selected from alkyl, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

30. (Currently Amended) The compound of claim 26 wherein:

W is C=O;

X ~~comprises~~ is C ~~or~~ N;

Y ~~comprises~~ O, S, NH, N-alkyl, N=N, C=C ~~or~~ C≡C;

Z is O;

R<sub>1</sub> ~~comprises~~ is selected from methyl, OH, CH<sub>2</sub>OH[[:]] , halogen ~~or~~ and C(halogen)<sub>3</sub>;

R<sub>2</sub> ~~comprises~~ is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, C(halogen)<sub>3</sub>, alcohol, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and ~~comprises~~ is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring ~~or~~ and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl,  
or



Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> ~~or~~ and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H ~~or~~ and alkyl, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N ~~or~~ and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> ~~or~~ and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring, a heterocyclic ring, alkylamino ~~or~~ and NH,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about

sixteen carbon atoms, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub>, or adamantan-2-ylidenemethyl-T<sub>3</sub>, alkylamino, di-alkylamino or and NH,

T<sub>2</sub> comprises is selected from, in any possible position, a substituent group or and -CO-T<sub>4</sub>,

T<sub>3</sub> comprises is an alkyl group having from 0 to about 9 carbon atoms,

T<sub>4</sub> comprises is selected from H, C(halogen)<sub>3</sub>, OH, NH<sub>2</sub>, NO<sub>2</sub>, alkyl, alkoxy, alkylamino, di-alkylamino, a heterocyclic ring or and a heteroaromatic ring.

31. (Currently Amended) The compound of claim 26 wherein:

W is C=O;

X comprises is C or N;

~~Y comprises O, S, NH, N-alkyl, N=N, C=C or C≡C;~~

~~Z is O;~~

R<sub>1</sub> comprises is selected from methyl, OH or and CH<sub>2</sub>OH;

R<sub>2</sub> comprises is selected from H, OH, OCH<sub>3</sub>, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, SO<sub>3</sub>H, halogen, C(halogen)<sub>3</sub>, alcohol, NQ<sub>1</sub>Q<sub>2</sub>, COOQ<sub>3</sub>, OQ<sub>3</sub>, NH-COalkyl, NH-CO-aryl, O-COalkyl, O-COalkyl-T<sub>1</sub>, O-CO-T<sub>1</sub>, NH-COalkyl-T<sub>1</sub>, NH-CO-T<sub>1</sub>, O-alkyl-T<sub>1</sub>, O-T<sub>1</sub>, NH-alkyl-T<sub>1</sub>, NH-T<sub>1</sub>, SO<sub>3</sub>alkyl, SO<sub>2</sub>NQ<sub>1</sub>Q<sub>2</sub> or and CONQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> is in any possible position and comprises is selected from PO<sub>3</sub>H, SO<sub>3</sub>H, an alkyl group containing from 1 to about 16 carbon atoms, tetrahydropyrrole, morpholine, thiomorpholine, piperazine, a heterocyclic ring or and NQ<sub>1</sub>Q<sub>2</sub>,

T<sub>1</sub> may be substituted in any possible position with at least one member selected from a substituent group, OPO<sub>3</sub>H<sub>2</sub>, OSO<sub>3</sub>H, PO<sub>3</sub>H<sub>2</sub>, a heterocyclic ring

or and a heteroaromatic ring,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members,

Q<sub>3</sub> ~~comprises~~ is selected from H, alkyl, alcohol[[, or]] and alkyl-NQ<sub>1</sub>Q<sub>2</sub>;

R<sub>3</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members;

R<sub>4</sub> ~~comprises~~ is selected from H, OH, halogen, C(halogen)<sub>3</sub>, CN, N<sub>3</sub>, NCS, NQ<sub>1</sub>Q<sub>2</sub> or and an alkyl group having 1 to about 4 carbon atoms,

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from ~~comprise~~ H or and alkyl,  
or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of a heterocyclic ring having about 4 to about 7 ring members and optionally one additional heteroatom selected from O, N or and S, or

Q<sub>1</sub> and Q<sub>2</sub> together comprise part of an imide ring having about 5 to about 6 members; and

R<sub>5</sub> ~~comprises~~ is selected from -D<sub>1</sub>-D<sub>2</sub>-T<sub>2</sub> or and -D<sub>2</sub>-T<sub>2</sub>,

D<sub>1</sub>, if present, ~~comprises~~ is selected from alkyl, a carbocyclic ring having 4 to 6 ring members ~~or~~ and a heterocyclic ring having 4 to 6 ring members and 1,3 di-heteroatoms each heteroatom independently selected from O, S and N,

D<sub>2</sub> ~~comprises~~ is selected from an alkyl group having from one to about sixteen carbon atoms, alkylamino, di-alkylamino, NH, a bicyclic ring, a tricyclic ring, 1-adamantyl-T<sub>3</sub>, 2-adamantyl-T<sub>3</sub>, adamantan-1-ylmethyl-T<sub>3</sub> ~~or~~ and adamantan-2-ylidenemethyl-T<sub>3</sub>,

T<sub>2</sub> ~~comprises~~ is selected from, in any possible position, a substituent group ~~or~~ and -CO-T<sub>4</sub>,

T<sub>3</sub> ~~comprises~~ is an alkyl group having from 0 to about 9 carbon atoms, and

T<sub>4</sub> ~~comprises~~ is selected from alkyl, C(halogen)<sub>3</sub> aminoalkyl, di-aminoalkyl, NH<sub>2</sub>, a heterocyclic ring ~~or~~ and a heteroaromatic ring.

Claims 32-40. (Canceled)

41. (new) A pharmaceutical composition comprising a therapeutically effective amount of at least one compound from claim 21 or a physiologically acceptable salt thereof.

42. (new) A pharmaceutical composition comprising a therapeutically effective amount of at least one compound from claim 26 or a physiologically acceptable salt thereof.

43. (new) A method of stimulating a cannabinoid receptor in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound from claim 21 or a physiologically acceptable salt thereof.

44. (new) A method of stimulating a cannabinoid receptor in an individual or animal comprising administering to the individual or animal a therapeutically effective amount of at least one compound from claim 26 or a physiologically acceptable salt thereof.